

**UNITED STATES OF AMERICA  
DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION  
RENTON, WASHINGTON 98055-4056**

In the matter of the petition of

**JRG Design Inc.**

for an exemption from § 25.857(e) of  
Title 14, Code of Federal Regulations

**Regulatory Docket No. 29853**

**PARTIAL GRANT OF EXEMPTION**

By letter dated September 3, 1999, Mr. Hugh H. Amick, JRG Design Inc., 6015 Crystal Spring Court, Greensboro, NC 27410, petitioned for exemption from the requirements of § 25.857(e) of Title 14, Code of Federal Regulations (14 CFR). The proposed exemption, if granted, would permit the accommodation of up to two supernumeraries immediately aft of the cockpit on DC-10-30F & -40F freighter airplanes equipped with a Class E cargo compartment.

**The petitioner requests relief from the following regulations:**

Section 25.857(e), as adopted in part 25, defines the attributes of a Class E cargo compartment, and requires that a Class E cargo compartment may not be on any aircraft other than one utilized exclusively for the carriage of cargo (i.e., occupants other than flightcrew not permitted).

**Related sections of 14 CFR:**

Title 14, Code of Federal Regulations § 121.583(a) contains, in pertinent part, a listing of categories of the occupants who may be carried aboard an airplane in part 121 service without complying with all the passenger-carrying airplane requirements of part 121.

Title 14, Code of Federal Regulations § 121.583(c) requires that supernumerary occupants receive oral briefings on pertinent emergency equipment prior to each takeoff.

Subpart N of part 121 provides the training requirements for crewmembers.

**The petitioner's supportive information is as follows:**

JRG Design Inc. hereby petitions the FAA for exemption from the requirements of § 25.857(e) of 14 CFR in order to allow supplemental type certification of DC-10-30F & -40F freighter airplanes, with accommodations for two non-crewmembers. These non-crewmembers are persons not necessarily assigned duty associated with the operation of the airplane.

"DESCRIPTION OF THE AIRPLANE TO BE COVERED: McDonnell Douglas DC10-30F & -40F airplanes are pressurized, transport category freighter airplanes having an all-cargo main-deck configuration. In order to optimize cargo missions, accommodation for two persons is provided between the flight deck and the main deck Class E compartment in the direct vicinity of the two forward passenger exits (one exit on each side of the fuselage). Except for the section from which exemption is requested, all design criteria applicable to passengers has been taken into account in the design of this seating arrangement."

In particular, crash protection and protection against penetration of smoke and noxious gasses is provided by a 9g crash net and smoke curtain which isolates the main-deck cargo compartment from the zone where the supernumeraries are seated. A Type A-sized emergency exit with escape slide retained from the passenger configuration of the airplane, is located on each side of the fuselage. Supplemental oxygen in case of depressurization (as required in case of smoke warning in the main deck cargo compartment) is provided by oxygen mask drops. The supernumerary occupants will be instructed by audio and lighted signs located in their direct eyescan that oxygen masks need to be used. These information signs can be either manually activated by a flightcrew member or are automatically turned on by an altitude pressure switch. Communication from the flight deck is possible through a public address (PA) speaker. Emergency equipment as required by the applicable airworthiness standards is provided.

"JRG Design believes that an equivalent level of safety will be achieved by design precautions and by introduction in the DC-10-30F & -40F Airplane Flight Manual of limitations defining the conditions under which supernumerary persons may be carried.

"EXTENT OF THE REQUESTED REGULATORY RELIEF: The purpose of this petition for exemption is to permit accommodation of two non-crewmembers on all-freighter airplanes with Class E cargo compartments, which is the direct reason for requesting exemption from § 25.857(e).

"SUPPORTING ARGUMENTS: Cargo operators need for their missions a number of support personnel, necessary for the safe handling of cargo in the process of

loading/offloading. Such personnel are obviously needed both at departure and destination of a cargo flight. It is particularly important that the cargo handlers are present upon airplane arrival if perishable goods or live animals are carried. The most efficient, surest, and cheapest way to assure their attendance at the destination airport is to transport them aboard the cargo flight.

"Among their various missions, cargo operators may have to carry particular kinds of goods such as live animals, hazardous materials, and valuable or perishable cargo. Such types of cargo cannot be left unattended, even for the duration of the flight, and the presence of personnel qualified in their handling is necessary on the airplane on which they are carried. Safety and efficiency of the operation will therefore be enhanced.

"Cargo operators also need to have qualified personnel necessary for operation and maintenance purposes at various locations. They will optimize their missions if they are permitted to carry their personnel aboard cargo flights, thus saving travel by regular passenger flights.

"The airworthiness standards applicable to type certification of the DC-10-30F & -40F consider carriage aboard commercial flights of crewmembers, including flight crewmembers and cabin attendants, who are assigned duties associated with the operation of the airplane, and passengers who have no expected ability in the use of emergency provisions and therefore need to be attended.

"The categories of occupants for which this exemption is sought are qualified aeronautical personnel. Furthermore, they are trained in the use and operation of emergency equipment.

"PUBLIC INTEREST: Granting this exemption will be in the public interest as, by having the possibility of carrying supernumerary persons aboard their cargo flights, the operators of DC-10-30F & -40F airplanes will be able to operate under optimal safety conditions, to render their operations more efficient, and to make substantial savings in carrying their personnel from one place to another. The reasons for these benefits are developed in the arguments above. This will also improve the utility of cargo airplanes."

A summary of JRG's petition was published in the Federal Register on January 6, 2000 (65 FR 804). No comments were received.

**The FAA's analysis/summary is as follows:**

Section 121.583: This section recognizes a "person" category of occupant, as distinct from "passenger" or "crew" occupants addressed in 14 CFR part 25. Section 121.583 allows non-compliance, for operational purposes only, with certain part 121 requirements normally pertinent to passenger-carrying airplanes, passenger-carrying operations, and passenger requirements. These "persons" are commonly referred to as supernumeraries. Supernumeraries are a special class of occupant, by virtue of certain knowledge and abilities attributed to them through selection and mandatory training. The resulting

enhanced capabilities of supernumeraries, over that which can be expected of passengers, allows exemption in certain instances from selected type design requirements that are normally imposed for the safety of ordinary passengers. In all cases, however, the desired end result is the retention of all passenger safety features to the maximum extent reasonable, when all factors are considered, and an overall level of safety for supernumeraries that is comparable to that afforded to passengers.

Part 25 does not address “persons.” Therefore, regardless of any part 121 provisions affecting operations, in order to modify part 25 transport category airplanes by installing supernumerary accommodations that do not comply with part 25 certification requirements for passengers, it is first necessary to petition for and obtain exemption from the affected part 25 requirements. To date, the FAA has processed, generally favorably, a number of petitions for exemption associated with the installation of supernumerary accommodations, provided there was a public interest in doing so, and certain conditions were met to assure an adequate level of safety. Those conditions have varied, depending on the airplane design, the nature of the proposals under consideration, and the number of persons involved. In most instances, these petitions have addressed accommodations for only a few supernumeraries, located immediately aft of the flight deck, which is a scenario reasonably consistent with that thought to be envisioned during the promulgation of § 121.583.

In reviewing the petition, the FAA notes the petitioner’s statement that, “...all design criteria applicable to the carriage of passengers *have been taken into account...*” (emphasis added). The FAA considers this statement to be somewhat less definitive than one declaring compliance with all pertinent sections of 14 CFR pertaining to accommodations for passengers. Accordingly, this partial grant of exemption shall be understood to address only the specific section from which exemption is sought, and necessarily assumes that all other pertinent passenger safety requirements of part 25 have been complied with to the satisfaction of the FAA’s cognizant Aircraft Certification Office (ACO). Examples of possible concerns which are suggested by a review of the planview drawings submitted in support of the petition include, but may not be limited to, adequate headrests for aft-facing seats, lifevest retrieval, footrest notification and stowage in a required emergency exit access, 9g cargo net extension not reducing required emergency exit access, etc.

Section 25.857(e): The requirements of § 25.857(e) permit the carriage of only cargo when a Class E cargo compartment is installed on an airplane. Class E cargo compartments are separate from the flight deck, and generally encompass the entire remaining interior of the airplane. One major concern in permitting occupancy by non-crewmembers outside the flight deck on such airplanes is in assuring that there is a suitable means for preventing smoke penetration into this occupied area. Another concern is that the persons allowed on board the airplane are limited to those who are briefed on emergency equipment and procedures, and are found by the operator to be both physically fit and willing to use the emergency equipment and means of emergency egress provided. The petitioner appears to satisfy these concerns by providing a smoke curtain, and by acknowledging that certain limitations on the occupants are appropriate.

These limitations are considered to be already adequately addressed in part 121, with regard to occupant qualifications and training.

The design requirements for airplanes with a Class E cargo compartment installed are predicated upon implementation of the cabin decompression procedures required by § 25.857(e)(3) to control a fire until a landing can be effected. Accordingly, DC-10F Airplane Flight Manual (AFM) procedures which require raising the cabin altitude to 25,000 feet when above 27,000 feet, and establishing a cabin differential pressure of 0.5 psi when below 27,000 feet, remain applicable, and shall be a condition of this exemption. Additionally, as a condition of this exemption, substantiation shall be provided to the satisfaction of the FAA that sufficient supplemental oxygen is available for all intended occupants at those cabin altitudes, for the maximum anticipated flight durations under those conditions. Finally in this regard, as conditions of this exemption, the cognizant FAA ACO shall confirm that the oxygen drop masks discussed herein comply with the automatic presentation requirements of § 25.1447(c)(1) and that the proposed audible and visual means of notifying supernumerary occupants are adequate under all ambient noise and lighting conditions likely to be encountered. The FAA feels that there is some ambiguity in the petition's discussion of automatic/manual notification, and therefore wishes to clarify that automatic *presentation of masks* and automatic *notification* shall be provided, with a manual backup, in order to be consistent with the requirements of § 25.1447(c)(1) and to adequately address the concern of unattended supernumerary occupants.

In providing rationales to justify the accommodation of supernumeraries, the petitioner has advanced some arguments which suggest that there is an expectation that these supernumeraries would and could have access to the Class E cargo compartment during taxi, takeoff, flight, and/or landing. Given that there are no regulatory requirements which address this scenario, however, and since the petitioner has not proposed any means of addressing the safety of occupants in this compartment during flight operations, entry into the Class E compartment during taxi, takeoff, flight, and landing shall necessarily be prohibited. Accordingly, it shall be a condition of this grant that any entry point from the supernumeraries' accommodation area to the Class E cargo compartment be placarded to this effect.

Section 11.25(b)(5): Relative to the requirements of § 11.25(b)(5) that a petitioner advance arguments why granting the petition would be in the public interest, the FAA generally expects to be presented with statements as to how the public would benefit from the grant of exemption. This petitioner, however, cited the various advantages of being permitted to accommodate supernumeraries in terms of financial benefit to the operator. In short, it appears that the petitioner's focus is on profitability, and not on reduced cost

for the public. Nevertheless, the FAA expects that any increased profitability will, due to market and competitive pressures, result in lower costs and other advantages to the consumer--which is in the public interest.

Title 49 part 175: Finally, attention is drawn to the petitioner's statements that hazardous cargo cannot be left unattended, as one justification for permitting supernumeraries onboard such flights. Without making any determinations as to the accuracy of this claim, the FAA advises in this regard that the carriage of hazardous cargo is governed by the operational and security requirements of 49 CFR part 175. Accordingly, and in view of the fact that the proposed supernumeraries are not being accommodated in the same compartment as any hazardous cargo, the FAA's Transport Airplane Directorate (TAD) makes no determination with regard to the acceptability of carrying supernumeraries on flights with hazardous cargo also onboard. The TAD does, however, as a reasonable precaution, recommend that the potential for exposure to hazardous materials be minimized to the maximum extent practicable, by reducing supernumerary occupancies on such flights to the minimum number absolutely required for safety of flight.

In consideration of the foregoing, I find that a partial grant of exemption is in the public interest and will not significantly affect the level of safety provided by the regulations. Therefore, pursuant to the authority contained in 49 U.S.C. §§ 40113 and 44701, delegated to me by the Administrator (14 CFR § 11.53), JRG Design Inc. is hereby granted an exemption from the requirements of § 25.857(e). The petition is granted to the extent required to permit supplemental type certification of DC-10-30F & -40F freighter airplanes with a Class E cargo compartment, with accommodations for up to two supernumeraries immediately aft of the cockpit as proposed, to include the airplane being equipped as proposed with two floor-level emergency exits with escape slide/rafts within the immediate vicinity of the occupied area, except as defined in the several conditions discussed above in the FAA's analysis/summary section.

Issued in Renton, Washington, on April 3, 2000.

/s/ Donald L. Riggin  
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Acting Manager  
Transport Airplane Directorate  
Aircraft Certification Service, ANM 100